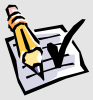
3.0 IN-FIELD ACTIVITIES

This chapter addresses the in-field activities a sampler will focus on during a sampling event such as: determining the type of samples to be collected; collecting the samples; meeting volume, preservation, and holding time requirements; completing documentation; and packing and shipping samples.



At-a-Glance:
In-field Activities.

✔ Collecting samples:
- Determine types of samples to be collected.
- Meet volume, preservation, and holding time requirements.

✔ Completing documentation:
- Identify a sample with a Sample Number
- Complete Traffic Report/Chain of Custody (TR/COC) Records.
- Complete and attach sample labels.
- Complete and attach sample tags.
- Complete and attach custody seals.

✔ Sampling considerations:
- General sampling techniques.
- Special sampling considerations.
- Contaminant sampling.
- Sample compositing and mixing.

✔ Packing and shipping samples:
- Sample containers.
- Inventory of samples and documentation.
- Follow shipping regulations.
- Package samples for shipment.

3.1 Collecting Samples

A Contract Laboratory Program (CLP) sample consists of all sample aliquots (portions):

- for each individual or set of analytical fractions;
- from one station location;
- for one sample matrix;
- at one concentration level;
- for one Laboratory; and
- for one analytical program, provided that the fractions are all requested from the same CLP analytical service.

CLP Routine Analytical Services (RAS) are generally used to analyze low and medium concentration samples. The matrices can be water, soil, or sediment. In some instances, a mixed-matrix sample may be collected which contains either a supernate (for a sediment/soil sample) or a precipitate (for a water sample). In this event, samplers should consult their management plans and/or discuss the required procedures with the Regional Site Manager (RSM) or their designee. In general, it is recommended that two individual samples be collected by separating the aqueous layer from the solid/precipitate layer at the point of collection.

3.1.1 Determine Types of Samples to be Collected

Sampling personnel may be required to take several types of samples or sample aliquots during a sampling event. Samplers should refer to their project plans to determine the types of samples or aliquots to be taken, the volumes needed of each sample or aliquot, and the preservation needed for each sample. For an explanation of the various sample types and the requirements for collecting and submitting each particular type, refer to Table 3-1.

Table 3-1. Quality Control Sample Types and CLP Submission Requirements

SAMPLE TYPE	PURPOSE	COLLECTION [1]	
Field Duplicate [2]	To check reproducibility of Laboratory and field procedures. To indicate non-homogeneity.	Collect from areas that are known or suspected to be contaminated. Collect one sample per week or 10% (Regions may vary) of all field samples per matrix, whichever is greater.	Assign two separate (unique) CLP Sample Numbers (i.e., one number to the field blank sample and one to the duplicate). Submit blind to the Laboratory.
Field Blanks	To check cross-contamination during sample collection, preservation, and shipment, as well as in the Laboratory. Also to check sample containers and preservatives.	Collect for each group of samples of similar matrix per day of sampling. Organics - Use water (demonstrated to be free of the contaminants of concern). Inorganics - Use metal-free (deionized or distilled) water.	Assign separate CLP Sample Numbers to the field blanks.
Trip Blank (Volatile Organic Analysis Only)	To check contamination of volatile organic samples during handling and shipment from field to Laboratory.	Prepare one sample using water demonstrated to be free of the contaminants of concern (deionized water is appropriate). Place this sample in the cooler used to ship volatile samples.	Assign separate CLP Sample Numbers to the trip blanks.
Equipment Blank or Rinsate Blank	To check field decontamination procedures.	Collect when sampling equipment is decontaminated and reused in the field or when a sample collection vessel (bailer or beaker) will be used. Use blank water (water decontamination to be organic-free, deionized or distilled for inorganics) to rinse water into the sample containers.	Assign separate CLP Sample Numbers to the equipment blanks.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)[3] (Organic Analysis Only)	To check accuracy and precision of organic analyses.	Collect from areas that are known or suspected to be contaminated. For smaller sampling events (i.e., 20 samples or less), MS/MSD additional volume should be collected in the first round of sampling and included in the first shipment of samples to the Laboratory. Collect double volume[4] for aqueous samples and soil volatile samples designated for MS/MSD analyses. Additional sample volume is not required for soil samples requiring Base Neutral Acid (BNA) and/or Pesticide/Polychlorinated Biphenyl (PCB) analysis.	Assign the same CLP Sample Number to the field blank sample and the extra volume for MS/MSD. Identify the sample designated for MS/MSD on the Traffic Report/Chain of Custody (TR/COC) Record.
Matrix Spike and Laboratory Duplicate (Inorganic Analysis Only)	To check accuracy and precision of organic analyses.	Collect from areas that are known or suspected to be contaminated. For smaller sampling events (i.e., 20 samples or less), Matrix Spike and Laboratory duplicates should be collected in the first round of sampling and included in the first shipment of samples to the Laboratory. Additional sample volume is not required for inorganic analysis.[5]	Assign the same CLP Sample Number to the field blank sample and extra volume (if collected). Identify the sample(s) designated for Matrix Spike and Laboratory duplicates on the TR/COC Record.

SAMPLE TYPE	PURPOSE	COLLECTION [1]	SAMPLE NUMBER
Performance Evaluation (PE) Samples	Specially-prepared QC samples used to evaluate a Laboratory's analytical proficiency.	The prepared samples contain analytes with concentrations unknown to the Laboratory. Designated Regional or authorized personnel (depending on Regional policy) arrange for Case-specific CLP PE audit samples to be prepared and shipped directly to the sampling site from the Quality Assurance Technical Support (QATS) contractor. QATS provides the appropriate preparation instructions and chain-of-custody materials.	Samplers have no direct interaction with the PE sampling process, but should be aware that such samples do exist within the CLP sampling process. Samplers must, however, order PE samples and ship them to the Laboratory if required by the Region.

[1] Consult Regional or Project Manager guidance for field QC sample frequencies; Laboratory QC sample frequencies are generally fixed in the Laboratory subcontracts or specified in analytical methods. Current frequency for MS/MSD (organic) and MS/duplicate (inorganic) for the CLP is one sample per twenty field samples of similar matrix.

[2] A true split for sediment, sludge, and soil samples (and other heterogenous samples such as highly turbid waters) is typically not feasible under field conditions. A split of this type of sample should generally be considered a duplicate.

[3] Samples sent under the Low Concentration Organic SOW do not require an MS or MSD, but the Region may opt to send them at their discretion.

[4] Example of double volume: An aqueous sample for BNA analysis would require the field sampler to collect at least 2 liters of field blank sample and at least 1 liter each for the MS and MSD samples for a total volume of 4 liters. If Pesticide/PCB MS/MSD analyses is required for the same sample, an additional 4 liters must be collected. Double volume is the MINIMUM allowable volume for samples designated for MS/MSD analysis. Triple volume may be sent for MS/MSD samples to allow for sufficient volume for these analysis in the event sample volume is lost as a result of samples breaking, leaking, or Laboratory accidents.

[5] Although additional volume is not required for inorganic Matrix Spike and Laboratory duplicate analysis, double volume may be sent for inorganic aqueous Matrix Spike and Laboratory duplicate samples to allow for sufficient volume for these analysis in the event sample volume is lost as a result of samples leaking or Laboratory accidents.

3.1.1.1 Collect Field Quality Control (QC) Samples

Samplers can collect Field Quality Control (QC) samples and Laboratory QC samples to verify that sample quality is maintained during a sampling project.

Field QC samples are designed to assess variability of the media being sampled and to detect contamination and sampling error in the field. The types of Field QC samples that are generally collected include field duplicates and field blanks (such as equipment, trip, or rinse blanks).

Generally, field duplicate samples should remain "blind" to the Laboratory (i.e., they should have separate Sample Numbers). The sampler should also prepare them to look identical to field blank samples (i.e., label, package, and shipment method).

Field Blank samples should not be submitted "blind" to the Laboratory unless the Region wishes to incur additional expenses (and in some cases provide extra volume) to check the Laboratory's accuracy and precision in analyzing these blanks (e.g., MS/MSD for organic analyses or Matrix Spike and Laboratory duplicate for inorganic analyses).

3.1.1.2 Collect Laboratory Quality Control (QC) Samples

A Laboratory QC sample is an additional analysis of an existing sample, as required by the Laboratory's contract. There are three types of Laboratory QC samples:

- Matrix Spikes (MSs) [for organic and inorganic samples];
- Matrix Spike Duplicates (MSDs) [for organic samples only]; and
- Laboratory duplicates (for inorganic samples only).

Note: Samplers should obtain Regional guidance for MS/MSDs.

Samplers should select one sample per matrix per 20 samples as a "Laboratory QC" sample. Designated organic Laboratory QC samples should be noted on the Organic TR/COC Record. Designated inorganic Laboratory QC samples should be noted on the Inorganic TR/COC Record. The Laboratory QC sample must not be designated in the "Field QC Qualifier" column on either the Organic or Inorganic TR/COC Records.

The sampler should select a field sample as the Laboratory QC sample. If the sampler does not select a field sample as the Laboratory QC sample, then it is possible that the Laboratory could select the field blank (e.g., an equipment or rinse blank) sample to meet contractual QC requirements. The use of field blank samples for QC analysis can detract from data quality and usability.

Extra volumes should be shipped with each group of samples (i.e., with each Sample Delivery Group [SDG]). For organic analyses, extra volumes will be collected in separate containers for MS and MSD samples. Mark these extra volume containers with the Sample Number and "MS/MSD".

Note: In the event of multiple sample shipments during a sampling event, it is recommended that the sampler submit Laboratory QC Samples in the first sample shipment.

Samplers may collect duplicate QC samples per their respective project plans to determine the variability of the sampling process. Duplicate samples should be collected simultaneously from the same source and under identical conditions as the original sample. Aqueous duplicate samples are collected from successive volumes from the same sample source and device (e.g., bailers). Soil duplicates are collected from the same sample source and device.

Samplers may collect split Laboratory QC samples per their respective project plans to measure the variability between Laboratories. The sample should be collected by separating one sample into two or more sample containers. Aqueous split samples should be collected by either obtaining consecutive sample volumes from the same bailer or mixing

the volumes in a large intermediate vessel, as appropriate, depending on the nature of contaminants and Regional guidance.

3.1.2 Meeting Volume, Preservation, and Holding Time Requirements

Sampling personnel should refer to their project plans to obtain the specific sample volumes to be collected, the preservation needed for those samples, and the technical holding times under which they must submit samples to the scheduled CLP Laboratory. Currently available sample collection parameters (to include sample volumes, preservatives, and technical holding times) for low/medium and low concentration organic collection and analysis are listed in Table 3-2. Sample collection parameters for inorganic analysis and collection are listed in Table 3-3. To determine availability of sampling services, please visit the USEPA Web site at:

http://www.epa.gov/superfund/programs/clp/index.htm

3.1.2.1 Collecting Sample Volume

Collecting sufficient sample volume is critical. There must be sufficient physical sample volume for the analysis of all required parameters and completion of all QC determinations. The type of analytical procedure(s) to be performed will often dictate the sample volume to collect. For example, each water sample collected for Volatile Organic Analyte (VOA) analysis by CLP SOW OLM04.2 requires two vials, each filled completely to a 40 mL capacity. It is extremely important that sampling personnel refer to their specific project plans to identify and collect the correct sample volume during each sampling event.

When sampling for low volatiles in soils, samplers should use CLP-Modified SW-846 Method 5035 guidelines included in Appendix B.

3.1.2.2 Preserving Samples

Degradation of some contaminants may occur naturally (e.g., VOAs). The sampler must chemically preserve some water samples for certain analytes before shipping them to the Laboratory. The sampler should preserve and immediately cool all samples to 4° C or less upon collection to time of analysis (do not freeze water samples). Preservation techniques vary among Regions so the sampler should obtain Region-specific instructions and review their appropriate project plans and Standard Operating Procedures (SOPs).

3.1.2.3 Shipping Within Holding Times

Sampling personnel should ship samples to scheduled CLP Laboratories as soon as possible after collection. Daily shipment of samples to CLP Laboratories is critical since many samples are stable for only a short time period following collection.

The technical holding times are the maximum lengths of time allowed between when a sample is collected and when the extraction and/or analysis is completed. In contrast, contractual holding times are the holding times that the CLP Laboratory must follow to comply with the terms of the contract, and are described in the CLP Analytical Services SOW. Contractual holding times are shorter than the technical holding times to allow for sample packing and shipping.

If sampling personnel are shipping samples after 5:00 PM Eastern Time (ET), they must notify the CLP Sample Management Office (SMO) by 8:00 AM ET on the following business day. When making a Saturday delivery, samplers **must** contact the CLP SMO by 3:00 PM ET on the Friday prior to delivery. Samplers should contact their RSCC Coordinator to obtain a CLP SMO contact name and phone number.

Table 3-2. Low Medium and Low Concentration Organic Collection Parameters (SOW OLM04.2, OLM04.3, and OLC03.2)

Analysis	Matrix	Containers	Volume/ Mass	Special Notes	Preservative	
Volatiles	Water	At least two 40 mL glass containers with Polytetrafluoroethylene (PTFE)-lined septa and open top screw-caps (see Table 2-2, Reference Number 1).	Fill to capacity	Vials must be filled to capacity with no headspace or air bubbles.	Preserve to a pH of 2 and cool to 4°C or less immediately after collection.[2] DO NOT FREEZE water samples.	14 days
		Collection by Modified SW-846 Method 5035[3]				
	Soils	Three EnCore™ (or equivalent; see Table 2-2, Reference Number 8) sample containers with approximately 5 g of sample and one 120 mL wide-mouth glass container to determine moisture content (see Table 2-2, Reference Number 5).	5 g		Cool all samples to 4°C or less immediately after collection.	48 hours for EnCore™ samples.
		OR				
	Non-Carbonaceous Soils	Two pre-prepared, tared, closed-system purge-and-trap vials with approximately 1 g of sodium bisulfate, 5 mL of reagent water, a stirring bar and approximately 5 g of sample (see Table 2-2, Reference Number 1).	5 g		Sodium Bisulfate	14 days
	Carbonaceous Soils	If the soil effervesces when tested with sodium bisulfate, use no preservative. Instead, use two pre-prepared, tared, closed-system sample vials, each with approximately 5 mL of reagent water, a stirring bar, and approximately 5 g of sample (see Table 2-2, Reference Number 1).	5 g	Sodium bisulfate cannot be used on carbonaceous soil samples.		48 hours
		Include one 120 mL wide mouth glass container filled with sample with no headspace to determine moisture content (see Table 2-2, Reference Number 5).	Fill to capacity	Headspace should be avoided.		

Table 3-2. Low Medium and Low Concentration Organic Collection Parameters (SOW OLM04.3, OLM04.2, and OLC03.2) Cont.

Analysis	Matrix	Containers	Volume/ Mass	Special Notes	Preservative	Technical Holding Time[1]
Semi Volatiles	Water	At least two 1 L amber glass bottles, fitted with screw-caps lined with PTFE (see Table 2-2, Reference Number 5).	2 Liters	If amber containers are not available, the samples should be protected from light.	Cool all samples to 4°C or less immediately after collection. DO NOT FREEZE water samples.	7 days
	Soil	Use one 8 oz wide-mouth glass jar or two 4 oz wide-mouth glass jars (see Table 2-2, Reference Number 3 and 4).	Fill to capacity		Cool all samples to 4°C or less immediately after collection.	14 days
Pesticides/ Aroclors	Water	At least two 1 L amber glass bottles, fitted with screw-caps lined with PTFE (see Table 2-2, Reference Number 5).	2 Liters	If amber containers are not available, the samples should be protected from the light.	Cool all samples to 4°C or less immediately after collection. DO NOT FREEZE water samples.	7 days
	Soil	Use one 8 oz wide-mouth glass jar or two 4 oz wide-mouth glass jars (see Table 2-2, Reference Number 3 and 4).	Fill to capacity		Cool all samples to 4°C or less immediately after collection.	14 days

[1]This technical holding time is calculated from the time of sample collection. It is recommended that samplers ship samples to the Laboratory on the same day that they are collected, or as soon as possible thereafter. Sample extracts are to be analyzed within 40 days of extraction.

[2]Check Regional guidance regarding use of acid preservatives when testing for carbonates, residual chlorine, and other oxidants.

[3]When sampling for low level volatile soils using Modified Method 5035, samplers should use the requirements that are provided in Appendix B.

Table 3-3. Inorganic Sample Collection Parameters (SOW ILM05.2)

Target Analyte/Method	Matrix	Containers	Volume/ Mass	Special Notes	Preservative	Technical Holding Time[1]
Metals/ICP-AES	Water	Polyethylene (see Table 2-2, Reference Number 2).	1 Liter		Acidify to pH <2 with HNO_3 and cool to 4°C or less immediately after collection.[2] DO NOT FREEZE water samples.	6 months
	Soil/ Sediment	Glass (see Table 2-2, Reference Number 4).	Fill to capacity		Cool to 4°C immediately after collection.	6 months
Mercury by CVAA	Water	Polyethylene (see Table 2-2, Reference Number 2).	1 Liter		Acidify to pH <2 with HNO_3 and cool to 4°C or less immediately after collection.[2] DO NOT FREEZE water samples.	28 days
	Soil/ Sediment	Glass (see Table 2-2, Reference Number 3).	Fill to capacity		Cool to 4°C immediately after collection.	28 days
Metals/ICP-MS	Water	Polyethylene (see Table 2-2, Reference Number 2).	1 Liter		Acidify to pH <2 with HNO_3 and cool to 4°C or less immediately after collection.[2]	6 months
Cyanide/Spectro-photometric Determination[3]	Water	Polyethylene (see Table 2-2, Reference Number 2).	1 Liter		To neutralize residual chlorine, immediately upon collection, add 0.6 g ascorbic acid for each liter of sample collected. Add NaOH until pH >12 and cool to 4°C or less immediately after collection. DO NOT FREEZE water samples.	14 days
	Soil/ Sediment	Glass (see Table 2-2, Reference Number 3).	Fill to capacity		Cool to 4°C or less immediately after collection.	14 days

[1]The technical holding time is calculated from the time of sample collection. It is recommended that samplers ship samples to the Laboratory the same day that they are collected, or as soon as possible thereafter.

[2]For the analysis of dissolved metals, the sampler is required to filter the sample through a membrane filter (such as a 0.45 micron pore diameter membrane filter) at the time of collection or as soon as possible thereafter. Use a portion of the sample to rinse the filter flask, discard this portion, and collect the required volume of filtrate. Then preserve as described above.

[3]Samplers must test for sulfide ioxidizers in the field upon collection. Please check the SAP for guidance. Sulfides adversely affect the analytical procedure. The following can be done to test for and neutralize sulfides. Place a drop of the sample on lead acetate test paper to detect the presence of sulfides. If sulfides are present, treat 25 mL more of the sample than that required for the cyanide determination with powdered cadmium carbonate or lead carbonate. Yellow cadmium sulfide or black lead sulfide precipitates if the sample contains sulfide. Repeat this operation until a drop of the treated sample solution does not darken the lead acetate test paper. Filter the solution through a dry filter paper into a dry beaker, and from the filtrate measure the sample to be used for analysis. Avoid a large excess of cadmium carbonate and a long contact time in order to minimize a loss by complexation or occlusion of cyanide on the precipitated material. Sulfide removal should be performed in the field, if practical, prior to pH adjustment with NaOH.

3.2 Complete Required Documentation

The minimum CLP-required documentation that sampling personnel must complete is the recording of the Sample Number on the sample container or bottle, the completion of the Traffic Report/Chain of Custody (TR/COC) Record, and the use of chain-of-custody seals. Secondary documentation that may be required by the Region includes sample labels and sample tags. Sampling personnel are expected to review their project plans to determine what secondary documentation they are expected to include during a sampling event. It is highly recommended that sampling personnel use the secondary documentation, even if the Region does not require it.

An example of a sample including all secondary documentation is shown in Figure 3-1. A description of each type of documentation (both primary and secondary) and instructions for accurately completing them are included in the following sections.

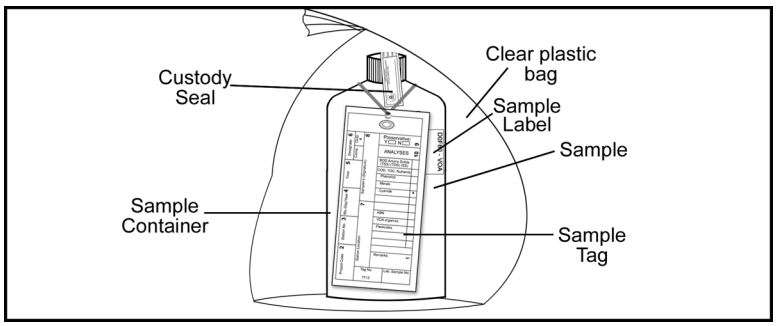


Figure 3-1. Packaged Sample with All Possible Identification and Chain-of-Custody Documentation (Excluding TR/COC Record) Attached

3.2.1 Identify a Sample with a Sample Number

The CLP-assigned Sample Number **must** be recorded on each sample taken during a sampling event (see Section 1.4.1.1). Sampling personnel can record this number on the sample bottle or container using permanent ink. The number could also be recorded on supplemental documentation such as a sample tag.

Note: Dissolved metal samples and total metal samples cannot have the same Sample Number because two different sets of data will be generated that must be stored separately.

3.2.2 Complete Traffic Report/Chain of Custody (TR/COC) Records

A TR/COC Record is used as physical evidence of sample custody and as a permanent record for each sample collected. A chain-of-custody record documents the exchange and transportation of samples from the field to the Laboratory.

AOC requires samplers to use the FORMS II Lite software to create documentation for all CLP sampling efforts. For assistance with obtaining or using the FORMS II Lite software, please contact the FORMS II Lite Help Desk at 703-715-4474 from 9:00 AM - 5:00 PM ET.

To meet primary CLP sample documentation and chain-of-custody requirements, the sampler should attach a separate TR/COC Record to each cooler they ship. The TR/COC Record must document each sample within the cooler. Samples shipped in other coolers should not be documented. This practice maintains the chain-of-custody for all samples in case of incorrect shipment.

It is critical that each CLP sample have a unique CLP Sample Number, therefore samplers should avoid errors such as:

- Failure to use CLP Sample Numbers;
- Incorrect use of CLP Sample Numbers (e.g., duplication); and
- Water and soil samples sent under the same CLP Sample Number.

If more than one TR/COC Record is used for the samples within one cooler, all of the records must have complete header information and original signatures. Sampling personnel are responsible for the care and custody of samples from the time of collection to the time of shipment to the Laboratories for analysis. A sample is considered under custody if:

- It is in possession or in view after being in possession;
- It was in possession and then locked up or sealed to prevent tampering; or
- It was in possession when placed in a secured area.

Each time the custody of samples is turned over to another person, the TR/COC Record must be signed off by the former custodian and accepted by the new custodian. Sampling personnel are, therefore, responsible for properly completing any forms or other Region-required documentation used to establish the chain-of-custody for each sample during a sampling event.

3.2.2.1 Completing a Traffic Report/Chain of Custody (TR/COC) Record Using the FORMS II Lite Software

The TR/COC Record is easily and automatically created by the FORMS II Lite software. A sampler will input the same information into the software program and a TR/COC Record will be generated electronically. The software will automatically allocate space on the form only to the fields used by the sampler. This feature of the software re-allocates on an as-needed basis, displaying only the information input by the sampler when the TR/COC Record is printed. The FORMS II Lite software will generate a Laboratory and a Regional copy of the TR/COC Record (see Figures 3-2 through 3-5). The sampler can print out multiple copies of the TR/COC Record as necessary. The sampler must sign and submit original copies of the TR/COC Record as appropriate.

An electronic TR/COC Record created using the FORMS II Lite software contains basic header information; however, the sampler can also include some additional detailed information. For example, not only is the sample matrix listed on the electronic TR/COC Record, but the name of the sampler taking the sample can also be entered. The

appearance of more space on the electronic TR/COC Record is a result of the space re-allocation on an as-needed basis. Samplers should note that certain guidance information will not appear on the electronic TR/COC Record (e.g., matrix and preservative descriptions).

Figure 3-2. An Organic TR/COC Record Created Using the FORMS II Lite Software (Laboratory Copy)

EPA **USEPA Contract Laboratory Program**
Organic Traffic Report & Chain of Custody Record

Case No: 99999
DAS No:
SDG No: L

Date Shipped: 04/09/2001
Carrier Name: FedEx
Airbill: 41033427144
Shipped to: Organic Lab
999 Route 120
Arlington VA 22044
(999) 555-5555

Chain of Custody Record

Sampler Signature:

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
C0100	Surface Soil (0"-6")/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	31 (Ice Only) (1)	1	S: 04/09/2001 11:05		
C0101	Surface Soil (0"-6")/ DAN SAMPLER	/G	Arochlors (7)	32 (Ice Only) (1)	2	S: 04/09/2001 11:20		
C0102	Surface Soil (0"-6")/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	33 (Ice Only) (1)	3	S: 04/09/2001 11:30		
C0103	Sediment/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	34 (Ice Only) (1)	4	S: 04/09/2001 11:45		
C0104	Sediment/ DAN SAMPLER	/G	Arochlors (7)	36 (Ice Only) (1)	5	S: 04/09/2001 11:55		
C0107	Surface Water/ DAN SAMPLER	/G	Arochlors (7)	3133 (Ice Only), 3134 (Ice Only) (2)	1	S: 04/09/2001 10:52 E: 04/09/2001 10:54		
C0108	Sediment/ JOE SAMPLER	/G	Arochlors (7)	3135 (Ice Only) (1)	3	S: 04/09/2001 10:51		

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: C0109	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact?___ Shipment Iced?___

Arochlors = Arochlors, BNA = TCL Semivolatiles, VOA = TCL Volatiles

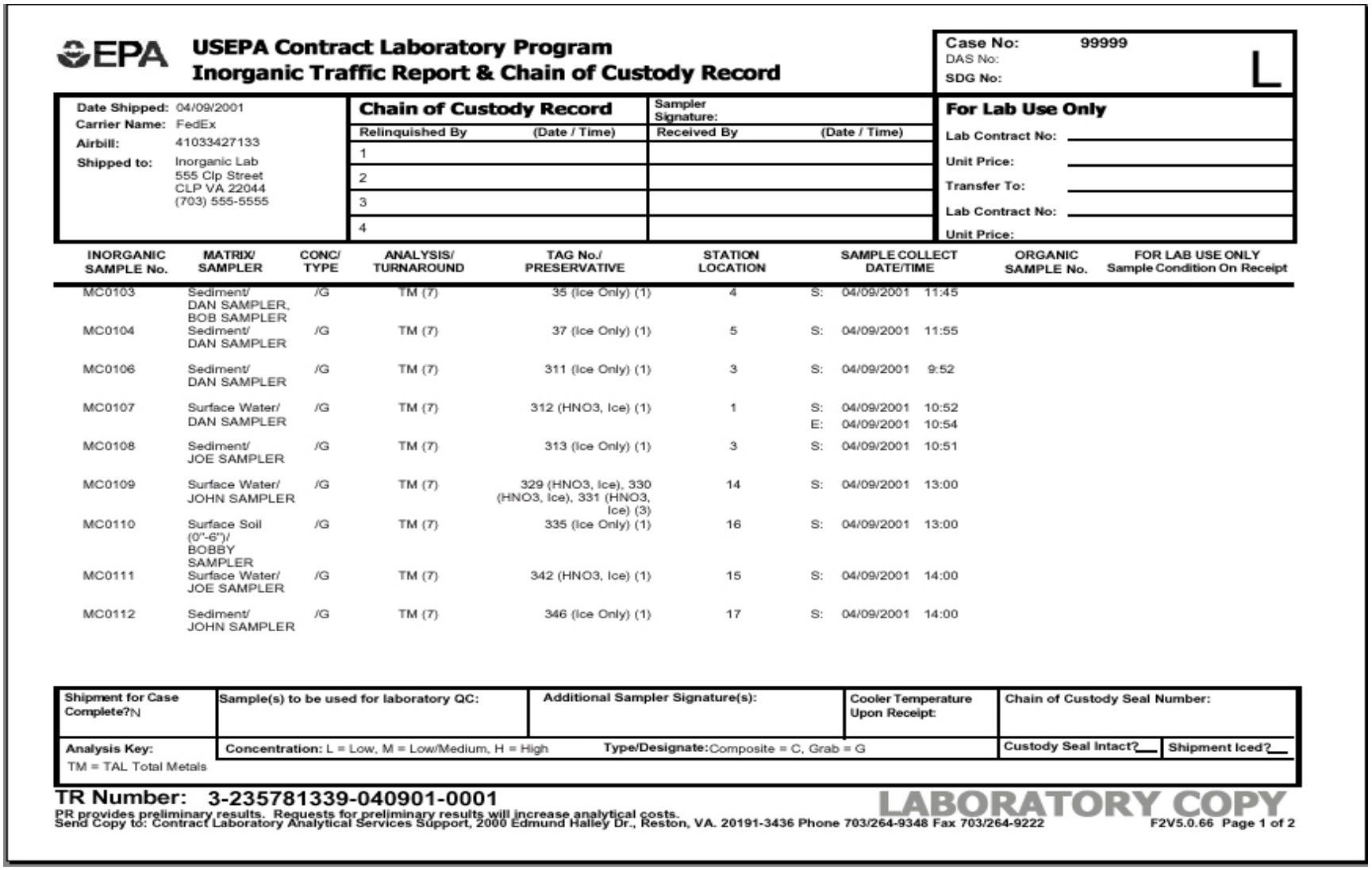
TR Number: 3-235781339-040901-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

LABORATORY COPY

F2V5.0.66 Page 1 of 3

Figure 3-3. An Inorganic TR/COC Record Created Using the FORMS II Lite Software (Laboratory Copy)



EPA

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 99999
DAS No:
SDG No: L

Date Shipped: 04/09/2001
Carrier Name: FedEx
Airbill: 41033427133
Shipped to: Inorganic Lab
555 Clp Street
CLP VA 22044
(703) 555-5555

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
MC0103	Sediment/ DAN SAMPLER, BOB SAMPLER	/G	TM (7)	35 (Ice Only) (1)	4	S: 04/09/2001 11:45		
MC0104	Sediment/ DAN SAMPLER	/G	TM (7)	37 (Ice Only) (1)	5	S: 04/09/2001 11:55		
MC0106	Sediment/ DAN SAMPLER	/G	TM (7)	311 (Ice Only) (1)	3	S: 04/09/2001 9:52		
MC0107	Surface Water/ DAN SAMPLER	/G	TM (7)	312 (HNO3, Ice) (1)	1	S: 04/09/2001 10:52 E: 04/09/2001 10:54		
MC0108	Sediment/ JOE SAMPLER	/G	TM (7)	313 (Ice Only) (1)	3	S: 04/09/2001 10:51		
MC0109	Surface Water/ JOHN SAMPLER	/G	TM (7)	329 (HNO3, Ice), 330 (HNO3, Ice), 331 (HNO3, Ice) (3)	14	S: 04/09/2001 13:00		
MC0110	Surface Soil (0"-6")/ BOBBY SAMPLER	/G	TM (7)	335 (Ice Only) (1)	16	S: 04/09/2001 13:00		
MC0111	Surface Water/ JOE SAMPLER	/G	TM (7)	342 (HNO3, Ice) (1)	15	S: 04/09/2001 14:00		
MC0112	Sediment/ JOHN SAMPLER	/G	TM (7)	346 (Ice Only) (1)	17	S: 04/09/2001 14:00		

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:	
Analysis Key: TM = TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact?__	Shipment Iced?__

TR Number: 3-235781339-040901-0001

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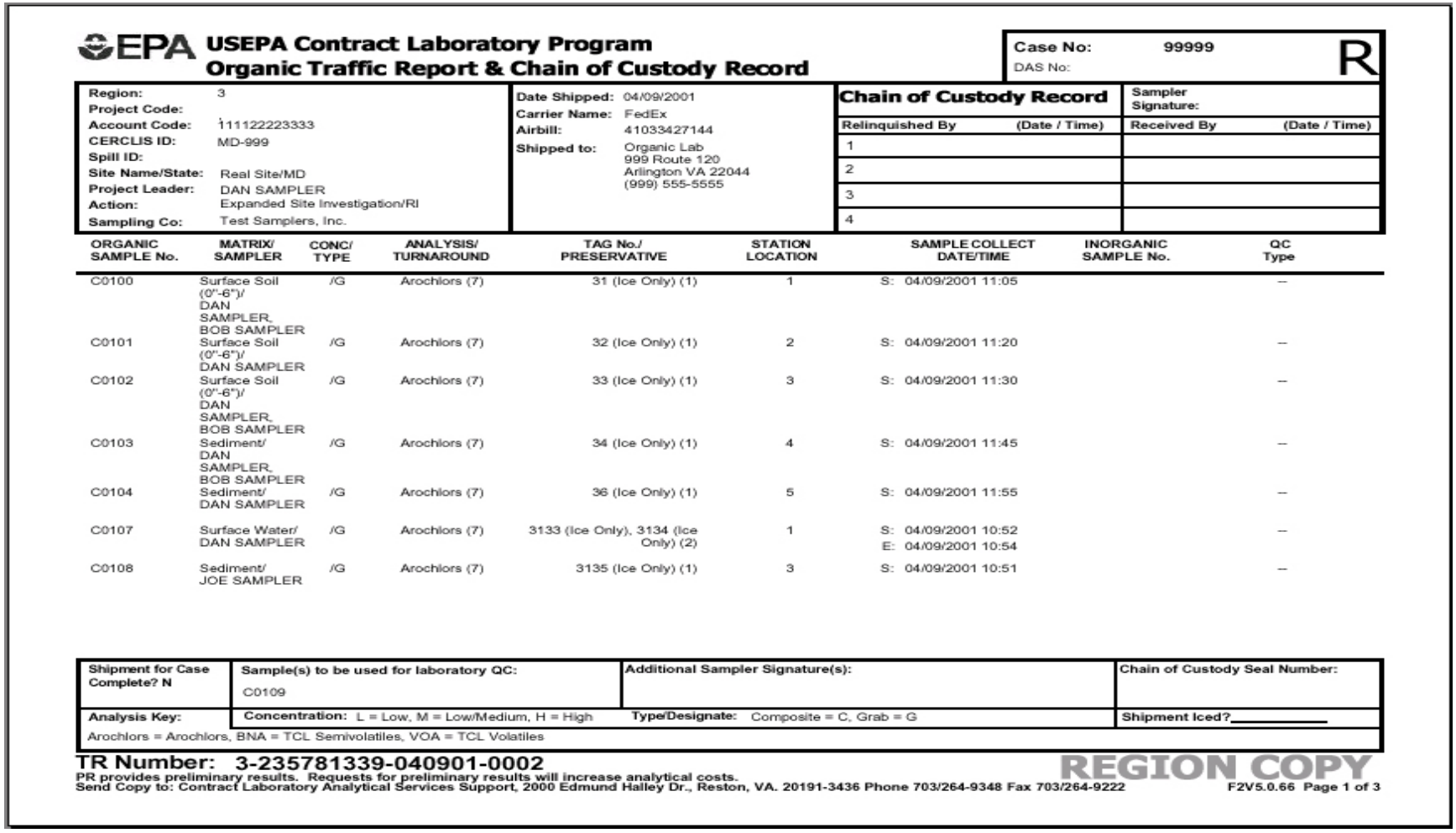
F2V5.0.66 Page 1 of 2

Figure 3-4. An Organic TR/COC Record Created Using the FORMS II Lite Software (Regional Copy)



EPA **USEPA Contract Laboratory Program**
Organic Traffic Report & Chain of Custody Record

Case No: 99999
DAS No:
R

Region:	3	**Date Shipped:**	04/09/2001
Project Code:		**Carrier Name:**	FedEx
Account Code:	111122223333	**Airbill:**	41033427144
CERCLIS ID:	MD-999	**Shipped to:**	Organic Lab 999 Route 120 Arlington VA 22044 (999) 555-5555
Spill ID:			
Site Name/State:	Real Site/MD		
Project Leader:	DAN SAMPLER		
Action:	Expanded Site Investigation/RI		
Sampling Co:	Test Samplers, Inc.		

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C0100	Surface Soil (0"-6")/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	31 (Ice Only) (1)	1	S: 04/09/2001 11:05		–
C0101	Surface Soil (0"-6")/ DAN SAMPLER	/G	Arochlors (7)	32 (Ice Only) (1)	2	S: 04/09/2001 11:20		–
C0102	Surface Soil (0"-6")/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	33 (Ice Only) (1)	3	S: 04/09/2001 11:30		–
C0103	Sediment/ DAN SAMPLER, BOB SAMPLER	/G	Arochlors (7)	34 (Ice Only) (1)	4	S: 04/09/2001 11:45		–
C0104	Sediment/ DAN SAMPLER	/G	Arochlors (7)	36 (Ice Only) (1)	5	S: 04/09/2001 11:55		–
C0107	Surface Water/ DAN SAMPLER	/G	Arochlors (7)	3133 (Ice Only), 3134 (Ice Only) (2)	1	S: 04/09/2001 10:52 E: 04/09/2001 10:54		–
C0108	Sediment/ JOE SAMPLER	/G	Arochlors (7)	3135 (Ice Only) (1)	3	S: 04/09/2001 10:51		–

Shipment for Case Complete? N	**Sample(s) to be used for laboratory QC:** C0109	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**_____
Arochlors = Arochlors, BNA = TCL Semivolatiles, VOA = TCL Volatiles			

TR Number: 3-235781339-040901-0002

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F2V5.0.66 Page 1 of 3

Figure 3-5. An Inorganic TR/COC Record Created Using the FORMS II Lite Software (Regional Copy)

EPA **USEPA Contract Laboratory Program**
Inorganic Traffic Report & Chain of Custody Record

Case No: 99999
DAS No:
R

Region:	3	**Date Shipped:**	04/09/2001	**Chain of Custody Record**	**Sampler Signature:**
Project Code:		**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	111122223333	**Airbill:**	41033427133	1	
CERCLIS ID:	MD-999	**Shipped to:**	Inorganic Lab 555 Clp Street CLP VA 22044 (703) 555-5555	2	
Spill ID:				3	
Site Name/State:	Real Site/MD			4	
Project Leader:	DAN SAMPLER				
Action:	Expanded Site Investigation/RI				
Sampling Co:	Test Samplers, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC0103	Sediment/ DAN SAMPLER, BOB SAMPLER	/G	TM (7)	35 (Ice Only) (1)	4	S: 04/09/2001 11:45		--
MC0104	Sediment/ DAN SAMPLER	/G	TM (7)	37 (Ice Only) (1)	5	S: 04/09/2001 11:55		--
MC0106	Sediment/ DAN SAMPLER	/G	TM (7)	311 (Ice Only) (1)	3	S: 04/09/2001 9:52		--
MC0107	Surface Water/ DAN SAMPLER	/G	TM (7)	312 (HNO3, Ice) (1)	1	S: 04/09/2001 10:52 E: 04/09/2001 10:54		--
MC0108	Sediment/ JOE SAMPLER	/G	TM (7)	313 (Ice Only) (1)	3	S: 04/09/2001 10:51		--
MC0109	Surface Water/ JOHN SAMPLER	/G	TM (7)	329 (HNO3, Ice), 330 (HNO3, Ice), 331 (HNO3, Ice) (3)	14	S: 04/09/2001 13:00		MS/MD
MC0110	Surface Soil (0"-6")/ BOBBY SAMPLER	/G	TM (7)	335 (Ice Only) (1)	16	S: 04/09/2001 13:00		--
MC0111	Surface Water/ JOE SAMPLER	/G	TM (7)	342 (HNO3, Ice) (1)	15	S: 04/09/2001 14:00		--
MC0112	Sediment/ JOHN SAMPLER	/G	TM (7)	346 (Ice Only) (1)	17	S: 04/09/2001 14:00		--

Shipment for Case Complete? N	**Sample(s) to be used for laboratory QC:**	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**_____
TM = TAL Total Metals			

TR Number: 3-235781339-040901-0001

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F2V5.0.66 Page 1 of 2

3.2.3 Complete and Attach Custody Seals

Custody seals are usually pre-printed stickers that are signed (or initialed) and dated by the sampler after collection and placed on sample bottles or containers and/or shipping coolers or containers. These seals document who sealed the sample container and that the sample has not been tampered with. The seals must be placed such that they will break if the sample bottle or container or the shipping cooler or container is tampered with or opened after leaving custody of sampling personnel (see Figure 3-6). Custody seals can also be used to maintain custody of other items such as envelopes containing videotapes of the sample collection process.

Note: Custody seals should never be placed directly onto an EnCore™ container. They must be placed on the EnCore™ bag. Refer to Appendix B for details.

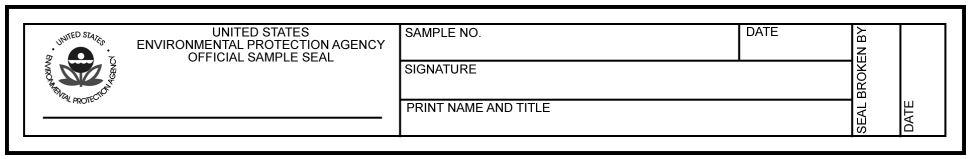

Figure 3-6. Custody Seal

Instructions for completing and attaching a custody seal are included in Table 3-4.

Table 3-4. Completing and Attaching a Custody Seal

Step	Action	Special Notes
1	Record the Sample Number.	The space for the Sample Number does not need to be completed on custody seals being placed on the opening of a cooler, only on those being placed on the opening of sample bottles or containers.
2	Record the month, day, and year of sample collection.	
3	Sign the seal in the Signature area.	
4	Print your name and title in the Print Name and Title area.	
5	Place the custody seal over the edge of the sample bottle or container such that it will break if tampered with.	
6	If possible, cover the custody seal with clear plastic tape to protect it.	Take special care to not place the protective tape over the seal in such a way that it can be removed and then re-attached without signs of tampering.

The use and type of custody seals can vary by Region or collecting organization. Sampling personnel should obtain the appropriate custody seals and specific instructions for correctly attaching them from the RSCC Coordinator.

3.2.4 Complete and Attach Sample Labels

It is recommended that samplers affix sample labels to each sample container. A sample label generally contains the associated Sample Number (either written or pre-printed). Samplers may also include additional information such as the station location or the date/time of collection. Per CLP minimum documentation requirements, the Sample Number must appear on a sample label or be legibly printed on the sample. Samplers should complete the label information if necessary using waterproof ink, place the label on the outside of the sample bottle or container, then cover the label with clear packaging tape to protect the label and maintain legibility (see Figure 3-1).

Note: Do not attach labels to tared VOA sample vials. A label should already be pre-attached to the tared vial and the sampler should complete the pre-attached label using waterproof ink.

3.2.5 Complete and Attach Sample Tags

To support use of sample data in potential enforcement actions, sample characteristics other than *in situ* measurements (e.g., pH, temperature, conductivity) can be identified with a sample tag. Typically, site-specific information is written on the tags using waterproof ink. The use and type of sample tags may vary by Region. For each sampling event, sampling personnel should receive the required sample tags and type of information to include from the Region/RSCC Coordinator. Per CLP primary documentation requirements, the sampler must record the Sample Number on a sample tag. A detailed set of instructions for completing and attaching a sample tag are included in Table 3-5.

Table 3-5. Completing and Attaching a Sample Tag

Step	Action	Special Notes
1	Under the "Remarks" heading, record the CLP Case Number and Sample Number.	Make sure to record the correct Case Number and Sample Number in a legible manner.
2	Record the project code (e.g., Contract Number, Work Assignment Number, Interagency Agreement Number, etc.) assigned by USEPA.	
3	Enter the station number assigned by the sampling team coordinator.	
4	Record the month, day, and year of sample collection.	
5	Enter the military time of sample collection (e.g., 13:01 for 1:01 PM).	
6	Place an "X" in the box next to Yes or No to indicate if a preservative was added to the sample.	
7	Under "Analyses", place an "X" in the box next to the parameters for which the sample is to be analyzed.	

Step	Action	Special Notes
8	Leave the box for "Laboratory Sample Number" blank.	
9	It is recommended that the sample tag be attached to the neck of the sample bottle or container using regular string, stretch string, or wire (see Figure 3-1).	Do **NOT** use wire to attach a sample tag to a metal sample.

An example of a completed sample tag is included in Figure 3-7 below:

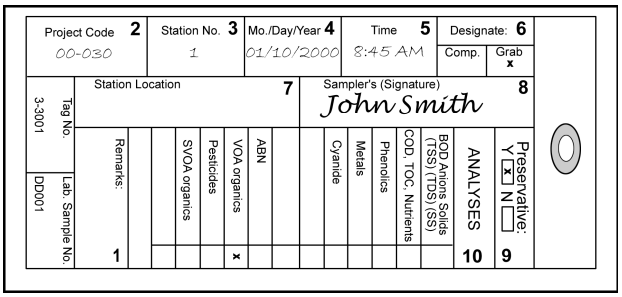

Figure 3-7. Completed Sample Tag

3.3 Sampling Considerations

When performing a sampling event, the sampler is expected to follow prescribed sampling techniques. The sampler should also be aware of any special sampling considerations, contaminant issues, and sample compositing and mixing methods that could affect their sampling efforts.

3.3.1 General Sampling Techniques

This section provides information on guidance documents available for collecting CLP RAS samples. Information regarding surface water, sediment, soil, and groundwater sampling can be found in many documents including, but not limited to, the following sources:

- Compendium of ERT Surface Water and Sediment Sampling Procedures, EPA/540/P-91/005;
- Compendium of ERT Soil Sampling and Surface Geophysics Procedures, EPA/540/P-91/006;
- Compendium of ERT Groundwater Sampling Procedures, EPA/540/P-91/007;
- Quality Assurance Sampling Plan for Environmental Response (QASPER) software, Version 4.1, ERT; and
- Requirements for the Preparation of Sampling and Analysis Plans, US Army Corps of Engineers, February 1, 2001, EM 200-1-3.

These documents, along with appropriate Regional guidance and procedures, should be consulted for detailed sample collection, preservation, handling and storing, equipment decontamination, and Quality Assurance/Quality Control (QA/QC) procedures.

When working with potentially hazardous materials, samplers should follow USEPA and Occupational Safety & Health Administration (OSHA) requirements, specific health and safety procedures, and Department of Transportation (DOT) requirements.

3.3.2 Special Sampling Considerations

The following sections provides general guidance for VOA, low concentration contaminant, duplicate, and split sample collection, along with procedures for compositing and mixing. The guidance provided in these sections may be useful and appropriate for the collection of CLP RAS samples.

Samplers should refer to Regionally-developed SOPs to obtain specific procedures for properly collecting and preserving samples in the field. For additional guidance regarding sampling for volatiles in soil and water, see Appendices B and C.

Samplers should obtain Regional guidance when testing and ameliorating for:

- Carbonates in VOA soil and water;
- Residual chlorine in VOA soil and water, or cyanide and water;
- Oxidants in VOA soil and water; or
- Sulfides in cyanide.

3.3.3 Contaminant Sampling

Certain compounds can be detected in the parts-per-billion (ppb) and/or parts-per-trillion (ppt) range. Extreme care MUST be taken to prevent cross-contamination of these samples. The following precautions should be taken when trace contaminants are a concern:

- Disposable gloves should be worn each time a different location is sampled.
- When collecting both surface water and sediments, surface water samples should be collected first. This reduces the chance of sediment dispersal into surface water, and the resulting loss of surface water sample integrity.
- Sampling should occur in a progression from the least to the most contaminated area, if this information is known to the sampling team.
- Samplers should use equipment constructed of PTFE, stainless steel, or glass that has been properly pre-cleaned for collection of samples for trace organic and/or inorganic analyses. Equipment constructed of plastic or polyvinyl chloride (PVC) should NOT be used to collect samples for trace organic compound analyses.

3.3.4 Sample Compositing

Sample compositing is a site-specific activity that must be conducted according to your Sampling Analysis Plan (SAP). Compositing is typically used for large sites under investigation to improve the precision (i.e., lower the variance) of the estimated average contaminant concentrations. **Samples for VOA analysis should NOT be composited to minimize loss of volatile analytes.**

Composite samples consist of a series of discrete grab samples that are mixed together to characterize the average composition of a given material. The discrete samples are usually of equal volume, but may be weighted to reflect an increased flow or volume. Regardless, all discrete samples must be collected in an identical manner and the number of grab samples forming a composite should be consistent.

There are several compositing techniques that may be required such as:

- Flow-proportioned – Collected proportional to the flow rate during the compositing period by either a time-varying/constant volume or a time-constant/varying volume method. This technique is usually associated with wastewater or storm water runoff sampling.
- Time – Composed of a varying number of discrete samples collected at equal time intervals during the compositing period. This technique is typically used to sample wastewater and streams, and in some air sampling applications.
- Areal – Collected from individual grab samples collected in an area or on a cross-sectional basis. Areal composites are comprised of equal volumes of grab samples where all grabs are collected in an identical manner. This technique is typically used for estimating average contaminant concentrations in soils or sediments. This technique is useful when contaminants are present in nugget form (i.e., TNT chunks, lead shot, etc.), thus exhibiting large differences in concentration over a small sample area.
- Vertical – Collected from individual grab samples but taken from a vertical cross section. Vertical composites are comprised of equal volumes of grab samples where all grab samples are collected in an identical manner. Examples would include vertical profiles of a soil borehole or sediment columns.
- Volume – Collected from discrete samples whose aliquot volumes are proportional to the volume of sampled material. Volume composites are usually associated with hazardous waste bulking operations where the sample represents combined or bulked waste.

When compositing solid samples (i.e., sediment, soil, or sludge) for analysis of compounds present in trace quantities, a stainless steel or PTFE bowl and spatula should be used.

3.3.5 Sample Mixing and Homogenizing

Mixing of the sample for the remaining parameters is necessary to create a representative sample media. It is extremely important that solid samples be mixed as thoroughly as possible to ensure that the sample is as representative as possible of the sample location. Please refer to the project-specific SAP regarding instructions on removal of any extraneous materials (e.g., leaves, sticks, rocks, etc.). The mixing technique will depend on the physical characteristics of the solid material (e.g., particle size, moisture content, etc.). The mixing container should be large enough to hold the sample volume and accommodate the procedures without spilling. Both the mixing container (generally a bowl or tray) and the mixing implement should be properly decontaminated before use. Samples should be homogenized according to procedures listed in the project-specific SAP.

Samples for VOA analysis should not be mixed to minimize loss of volatile analytes.

Table 3-6 provides a short procedure for mixing a soil sample with a small particle size (less than 1/4 in) and filling sample containers in the field.

Table 3-6. Mixing a Sample and Filling Sample Containers

Step	Action
1	Roll the contents of the compositing container to the middle of the container and mix.
2	Quarter the sample and move to the sides of the container.
3	Mix each quarter individually, then combine and mix OPPOSITE quarters, then roll to the middle of the container.
4	Mix the sample once more, then quarter the sample again.
5	Mix each quarter individually, then combine and mix ADJACENT corners, then roll to the middle of the container. The goal is to achieve a consistent physical appearance before sample containers are filled.
6	Flatten piled material into an oblong shape.
7	Using a flat-bottomed scoop, collect a strip of soil across the entire width of the short axis and place it into a sample container.
8	Repeat Step 8 at evenly-spaced intervals until the sample containers are filled.
9	Record the approximate quantity of each subsample in the field log book.

3.4 Pack and Ship Samples

Once the samples have been taken, it is very important that the sampler properly package the samples for shipment and ensure that the samples are sent to the appropriate Laboratory as quickly as possible. Prompt and proper packaging of samples will:

- Meet acceptance or performance criteria (i.e., acceptance or performance criteria such as detection limits) by collecting sufficient sample volumes for each method;
- Protect the integrity of samples from changes in composition or concentration caused by bacterial growth or degradation from increased temperatures;
- Reduce the chance of leaking or breaking of sample containers that would result in loss of sample volume, loss of sample integrity, and exposure of personnel to toxic substances; and
- Help ensure compliance with shipping regulations.

3.4.1 Sample Containers

Once samples are collected, they must be stored in conditions that maintain sample integrity. All samples should be placed in shipping containers or other suitable containers with ice to reduce the temperature as soon as possible after collection. Ideally, all samples should be shipped the day of collection for overnight delivery to the Laboratory.

If samples cannot be shipped on the day of collection, the sample temperature should be maintained at 4°C or less until they are shipped to the Laboratory.

One CLP RAS sample may be contained in several bottles and vials. For example, under the Low/Medium Organic CLP RAS, one water sample might consist of all containers needed for the three analytical fractions available under this service (i.e., volatile fraction, semivolatile fraction, and Pesticide/Aroclor fraction), even though the fractions will be collected in separate containers. Therefore, the analysis to be performed and the matrix type will determine the type of container that will be used as well as the volume that must be collected for that particular sample fraction.

3.4.2 Inventory of Samples and Documentation

Prior to shipment, sampling personnel should conduct an inventory of the contents of the shipping cooler or container against the corresponding TR/COC Record when packing for shipment to Laboratories. An inventory will ensure that the proper number of containers have been collected for each analysis of the samples, that the required PE and QC samples and cooler temperature blanks are included, and the correct Sample Numbers and fractions have been assigned to each sample.

3.4.3 Follow Shipping Regulations

Sample shipping personnel are legally responsible for ensuring that the sample shipment will comply with all applicable shipping regulations. For example, hazardous material samples must be packaged, labeled, and shipped in compliance with all International Air Transport Association (IATA) Dangerous Goods regulations or DOT regulations and USEPA guidelines.

Refer to Appendix B for detailed shipping guidelines when using Method 5035 to preserve and ship samples.

3.4.4 Package Samples for Shipment

Sampling personnel are responsible for the proper packaging of samples for shipment. To ensure that samples are appropriately packaged (e.g., to avoid breakage and/or contamination) the sampler should consult their respective project plans to determine the proper packing and shipping procedures. The sampler must determine the sample type, pack the shipping containers correctly, include necessary paperwork, label and seal shipping containers or coolers, and ship the samples.

3.4.4.1 Determine the Sample Type and Container

Sampling personnel should know what kinds of samples they are handling to ensure proper packaging. For example, samples known to contain dioxin must be sealed in metal containers. Samplers should refer to their appropriate project plans to determine which type of sample container should be used for each type of sample being taken during the sampling event.

3.4.4.2 Pack Shipping Containers

It is imperative that samples are correctly and carefully packed in shipping containers to prevent the sample containers from breaking or leaking. Samplers must prepare and pack a shipping cooler or container according to the instructions outlined in Table 3-7.

Table 3-7. Packing Samples for Shipment

Step	Action	Special Notes
1	Seal all drain holes, both inside and out, to prevent leakage in the event of sample breakage.	
2	Check all lids/caps to make sure they are tightly sealed and will not leak.	
3	Seal samples within a clear plastic bag.	
4	Fully chill samples to 4°C or less prior to placement within suitable packing materials.	
5	Prior to placing samples within the shipping cooler, it is recommended that samplers line shipping containers with non-combustible, absorbent packing material such as rock wool, ground corn cobs, perlite, or clay-based absorbents (e.g., kitty litter or 'oil dry').	
6	Place samples in CLEAN, sealed, watertight shipping containers (metal or hard plastic cooler).	
7	Conduct an inventory of the contents of the shipping cooler/container against the corresponding TR/COC Record.	
8	Cover samples in double-bagged ice to prevent water damage to packing materials.	Do NOT pour loose ice directly into the sample cooler. The ice will maintain the temperature of the samples within the shipping cooler.
9	**It is recommended that samplers include a temperature blank within each cooler being shipped.**	**The temperature blank is generally a 40 mL vial filled with water and labeled "temperature blank".**

3.4.4.3 Include Necessary Paperwork

Sampling personnel must properly place the required paperwork in the shipping cooler. For example, TR/COC Records should be placed in a plastic bag or pouch and then secured to the underside of the shipping cooler lids (see Figure 3-8).

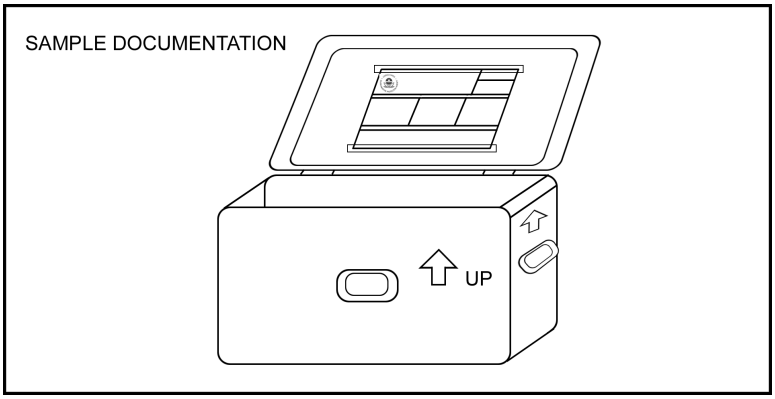

Figure 3-8. Sample Cooler with Attached TR/COC Record and Cooler Return Documentation

3.4.4.4 Return Sample Shipping Coolers

CLP Laboratories must routinely return sample shipping coolers within 14 calendar days following shipment receipt. Therefore, the sampler should also include cooler return instructions with each shipment. The sampler (not the CLP Laboratory) is responsible for paying for return of the cooler and should also include shipping airbills bearing the sampler's account number, as well as a return address to allow for cooler return.

3.4.4.5 Label and Seal Sample Shipping Coolers

After samples are packaged within shipping coolers, sampling personnel should carefully secure the top and bottom of the coolers with tape, place return address labels clearly on the outside of the cooler, and attach the correct chain-of-custody seals, if required (see Figure 3-9).

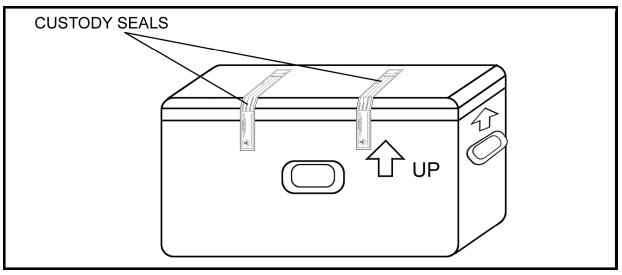

Figure 3-9. Shipping Cooler with Custody Seals

If more than one cooler is being delivered to a Laboratory, samplers should mark each cooler as "1 of 2", "2 of 2", etc. In addition, sampling personnel must accurately complete and attach shipping airbill paperwork for shipment of the samples to the Laboratory. An airbill, addressed to the Sample Custodian of the receiving Laboratory, should be completed for each cooler shipped. Sampling personnel should receive the correct name, address, and telephone number of the Laboratory to which they must ship samples from

the Region/RSCC Coordinator. To avoid delays in analytical testing, sampling personnel should make sure they are sending the correct types of samples to the correct Laboratory when collecting samples for multiple types of analysis. For example, inorganic samples may be shipped to one Laboratory for analysis, while organic samples may need to be shipped to another Laboratory.

3.4.4.6 Ship Samples

The sampling contractor should ensure that sampling personnel know the shipping company's name, address, and telephone number. In addition, they should be aware of the shipping company's hours of operation, shipping schedule, and pick-up/drop-off requirements.

Overnight Delivery

It is imperative that samples be sent via overnight delivery. Delays caused by longer shipment times may cause technical holding times to expire, which in turn may destroy sample integrity or require the recollection of samples for analysis.

Saturday Delivery

If shipping samples for Saturday delivery, the sampler **MUST** contact CLP SMO by 3:00 PM ET on the Friday prior to delivery.

3.4.5 Provide Shipment Notification

When samples are shipped to CLP Laboratories, sampling personnel **must immediately** report all sample shipments to CLP SMO. If sampling personnel are shipping samples after 5:00 PM ET, they must notify CLP SMO by 8:00 AM ET on the following business day. Sampling personnel should receive the name and phone number of the appropriate CLP SMO coordinator to contact from the Region/RSCC Coordinator.

Samplers must provide the following information to CLP SMO:

- Name and phone number at which they can easily be reached (preferably closest on-site phone number if still in the field);
- Case Number (see Section 2.4.1);
- Number, concentration, matrix and analysis of samples being shipped;
- Name of Laboratory (or Laboratories) to which the samples were shipped;
- Airbill number(s);
- Date of shipment;
- Case status (i.e., whether or not the Case is complete);
- Problems encountered, special comments, or any unanticipated issues;
- When to expect the next anticipated shipment; and
- An electronic export of the TR/COC Record (must be sent within five days of sample shipment). For information regarding electronic export of TR/COC Records, refer to the following Web site:

http://www.epa.gov/superfund/programs/clp/f2lsubmit.htm

Note: For Saturday delivery, samplers **MUST** contact CLP SMO by 3:00 PM ET on the Friday prior to delivery.

Samplers should also be aware if their Region requires them to notify the RSCC Coordinator (or their designee) of sample shipment.